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Leslie Raymond Bates

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EXAMINER

PARSLEY, DAVID J

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,999	Applicant(s) BATES ET AL.	
	Examiner DAVID J. PARSLEY	Art Unit 3643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-27,29,30 and 45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-27,29,30 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3-31-09, 1-15-10</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 3643

Detailed Action

Amendment

1. This office action is in response to applicant's amendment dated 3-1-10 and this action is a final rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 13, 19-27 and 29-30 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,766,813 to Winter et al.

Referring to claims 1 and 29, Winter et al. discloses a reactive shaped charge liner comprising a stoichiometric composition of two metals whereby the liner is capable in operation of an exothermic reaction upon activation of an associated shaped charge and in which the two metals are provided in respective proportions calculated to give an electron concentration of 1.5 - see figure 1 and column 3 lines 20-45. Winter et al. further discloses the composition is a pressed particulate composition - see column 3 lines 20-45.

Art Unit: 3643

Referring to claim 2, Winter et al. further discloses one of the metals is aluminum – see column 3 lines 20-45.

Referring to claim 3, Winter et al. further discloses one of the metals is selected from nickel and palladium - see column 3 lines 20-45.

Referring to claim 13, Winter et al. further discloses the composition is particulate with the particles having a diameter of 10 microns or less - see column 4 lines 50-66.

Referring to claim 19, Winter et al. further discloses the composition further comprises at least one further metal, wherein the at least one further metal is not capable of exothermic reaction upon activation of the shaped charge liner - see column 3 lines 20-45.

Referring to claim 20, Winter et al. further discloses the at least one further metal is selected from copper, tungsten or an alloy thereof – see column 3 lines 20- 45.

Referring to claim 21, Winter et al. further discloses the device of claim 1 as a shaped charge perforator - see figure 1.

Referring to claim 22, Winter et al. further discloses a housing – at 12, a quantity of high explosive - at 14, located within the housing - see figure 1, and a liner - at 18,30-34, of claim 1, located within the housing - see figure 1, so that the high explosive is positioned between the liner and the housing - see figure 1.

Referring to claims 23-27, Winter et al. further discloses one or more shaped charges of claims 1 and 21. Winter et al. does not specifically disclose a perforator gun, but Winter et al. does disclose using shaped charges in a well boring application as seen in column 1 lines 10-25 and in a well boring application the use of shaped charges in a perforating gun is inherent in such an application.

Art Unit: 3643

Referring to claim 30, Winter et al. further discloses one of the metals is iron, molybdenum, nickel or palladium – see column 3 lines 34-45.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-12 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as applied to claim 1 above, and further in view of U.S. Patent No. 6,371,219 to Collins et al.

Referring to claims 5 and 6, Winter et al. does not disclose a binder is added and/or coated on one of the metals to aid consolidation. Collins et al. does disclose a binder is added and/or coated on one of the metals to aid consolidation – see column 2 lines 50-67 and column 3 lines 1-15. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

Referring to claims 7 and 45, Winter et al. as modified by Collins et al. further discloses the binder is a polymer - see column 2 lines 50-67 of Collins et al. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

Art Unit: 3643

Referring to claim 8, Winter et al. as modified by Collins et al. does not specifically disclose the polymer is a stearate, wax or epoxy resin. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Collins et al. and add the polymer binder being a stearate, wax or epoxy resin, so as to allow for the metal particles to be securely held together during use.

Referring to claim 9, Winter et al. as modified by Collins et al. further discloses the polymer is an energetic polymer – see column 2 lines 50-67 and column 3 lines 1-15 of Collins et al. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

Referring to claim 10, Winter et al. as modified by Collins et al. does not specifically disclose the energetic binder is selected from Polyglyn, GAP or Polynimmo. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Collins et al. and add the energetic binder being Polyglyn, GAP or Polynimmo, so as to allow for the device to be more destructive during use.

Referring to claim 11, Winter et al. as modified by Collins et al. does not specifically disclose the binder is selected from lithium stearate or zinc stearate. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Collins et al. and add the binder being lithium stearate or zinc stearate, so as to allow for the metal particles to be securely held together during use.

Referring to claim 12, Winter et al. as modified by Collins et al. does not specifically disclose the binder is present in the range of 0.1 to 5% by mass. However, it would have been

Art Unit: 3643

obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Collins et al. and add the binder being 0.1 to 5% by mass, so as to ensure that there is sufficient binder to hold the metal particles in place during use.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as applied to claim 13 above.

Referring to claims 14 and 15, Winter et al. does not specifically disclose the composition has particles being 1 micron or less in diameter or .1 microns or less in diameter. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the particles being 1 or 0.1 microns or less, so as to allow for the particles to be easier to shape into the desired final product during manufacturing.

Referring to claims 16 and 17, Winter et al. does not specifically disclose the thickness of the liner is in the range of 1 to 10% or 1 to 5% the liner diameter. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the thickness of the liner being in the range of 1 to 10% or 1 to 5% the liner diameter, so as to allow for the device to be of sufficient size to be destructive during use.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as applied to claim 1 above, and further in view of U.S. Patent No. 3,235,005 to Delacour.

Referring to claim 18, Winter et al. does not disclose the thickness of the liner is non-uniform across the surface area of the liner. Delacour does disclose the thickness of the liner is non-uniform across the surface area of the liner - see at 7 or 13 in figures 4 and 6. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and

Art Unit: 3643

add the non-uniform thickness of the liner of Delacour, so as to allow for the device to be more destructive during use.

Response to Arguments

4. Applicant's claim amendments and remarks dated 3-1-10 obviates the claim objections and 35 U.S.C. 112 2nd paragraph rejections set forth in the office action dated 1-21-09.

Regarding the prior art rejections of claims 1-4, 13 and 19-27, the Winter et al. reference US 4766813 discloses a liner made of an inner layer and an outer layer where each layer can be made of multiple different metals respectively as seen in column 3 lines 34-45 and column 6 lines 39-51. Winter et al. further discloses the liner is a pressed particulate composition as seen in column 3 lines 20-45 where the inner layer is formed on the outer layer by electrodeposition, chemical vapor deposition or sputter deposition. Applicant does not disclose a specific definition of the term "pressed" but does indicate in the Abstract that pressed particulate matter is material consolidated under pressure. The electrodeposition, chemical vapor deposition and the sputter deposition techniques consolidate the inner liner layer onto the outer liner layer and are done under pressure in that they are not done in a complete vacuum and therefore are performed under pressure. Therefore, Winter et al. discloses a pressed particulate metal material consistent with applicant's description of the pressed particulate material disclosed in applicant's specification.

Regarding claim 3, this claim indicates the metal is nickel or palladium and the claim is not specific to palladium.

Regarding claim 13, Winter et al. discloses the composition is particulate with the particles having a diameter of 10 microns or less - see column 4 lines 50-66.

Regarding claims 19-20, Winter et al. further discloses the composition further comprises at least one further metal, wherein the at least one further metal is not capable of exothermic

Art Unit: 3643

reaction upon activation of the shaped charge liner - see column 3 lines 20-45, with the at least one further metal is selected from copper, tungsten or an alloy thereof – see column 3 lines 20-45.

Regarding claims 5-12 and 28, the Winter et al. reference discloses a pressed particulate material as discussed above. Further, the Collins et al. reference US 6371219 discloses a binder is added and/or coated on one of the metals to aid consolidation – see column 2 lines 50-67 and column 3 lines 1-15, with the binder being a polymer - see column 2 lines 50-67 of Collins et al. Collins et al. further discloses the polymer is an energetic polymer – see column 2 lines 50-67 and column 3 lines 1-15 of Collins et al. Further, the specific polymer used for the binder is a design consideration found through routine experimentation and therefore it would have been obvious to one of ordinary skill in the art to replace the polymer of Collins with another polymer in that it would yield a predictable result of holding the metal particles in the liner together.

Regarding claims 14-17, Winter et al. discloses the metals are pressed particulate materials as discussed above. With respect to claims 16-17, applicant has not placed any criticality to the specific thicknesses claimed and it is deemed that the device of Winter et al. is capable of performing equally as well with the claimed thicknesses.

Regarding claim 18, the Delacour reference US 3235005 discloses the thickness of the liner is non-uniform across the surface area of the liner - see at 7 or 13 in figures 4 and 6 where item 7 is a coating for the liner and therefore is part of the liner.

Conclusion

Art Unit: 3643

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is cited to further show the state of the art with respect to shaped charge liners in general:

U.S. Pat. No. 4,702,171 to Tal et al. – shows shaped charge liner formed by pressed particulate metals – see column 2 lines 65-68 and column 3 lines 1-45.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID J. PARSLEY whose telephone number is (571)272-6890. The examiner can normally be reached on Monday-Friday from 8am to 4pm.

Art Unit: 3643

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on (571) 272-6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David J Parsley/
Primary Examiner, Art Unit 3643